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Descriptions of six interesting species of Aleyrodidae from Malaya (Homoptera)¹⁾

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Aleurodicus cinnamomi n. sp.

Pupa case: Pale yellowish green in life, with thin waxy threads. Elliptic, a little or much narrower anteriorly, broadest about midlength of abdomen, not sinuate at the hind end, without submarginal setae. Suture between the thorax and abdomen not reaching the margin; the 7th abdominal segment the shortest; pockets prominent; the 8th longer than the 6th. Cephalothorax with a pair of large pores, which are as large as the posterior 2 pairs of pores on the abdomen, with a long pointed conical spine, that is, not reaching beyond the margin; 2 pairs of minute rounded tubercles present on the cephalothorax, of which one pair is on the metanotum. Abdomen with 5 pairs of pores, of which posterior 2 are much larger, with a long conical pointed spine; anterior 3 pairs of pores equal in size, with a short conical spine, which is not or a little reaching beyond the margin of the pore. Margin sclerotized, slightly crenate. Vasiform orifice wider than long, subcordate, rounded or bluntly pointed at the hind end, without tooth-like sculptures. Operculum short, rounded on the free margin, occupying less than half the orifice. Lingula reaching far beyond the hind end of the orifice, constricted basally, normal in shape, bluntly pointed apically, with 2 pairs of subapical setae, nearly reaching a line drawn between the hind margins of the posterior pair of pores. Space between the orifice and the hind end of body longer than the orifice excluding the lingula. Pupa case 1.08mm. long.

Host plants: *Cinnamomum* sp., *Machilus* sp., a plant of Lauraceae.

Singapore (21. XII. 1942), Kuala Lumpur (1. I. 1942), Cameron Highlands (1. X. 1944).

In the specimens from Singapore, marginal teeth more distinct, very short, but wide, usually sinuate at the middle of the distal margin, about 46 on each side; a

¹⁾ Contribution from the Research Institute for Natural Resources, No. 503

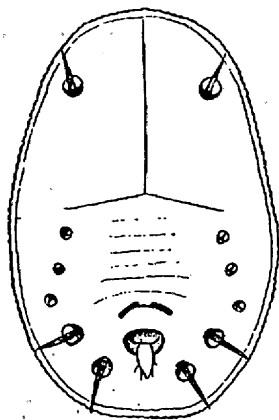


Fig. 1 *Aleurodicus cineranomomi* n. sp. Pupa case

short furrow running mesad from between the teeth.

Closely related to *Aleurodicus machili* Takahashi (Trans. Nat. Hist. Soc. Formosa, XXI, 1931, p. 208), which attacks also the Lauraceae, but differs as follows:

Marginal teeth shorter. Pores on the cephalothorax and posterior 2 pairs of pores on the abdomen larger than the remaining ones, with a longer spine. Pores on the 6th abdominal segment more lateral than other pores on the abdomen. Easily differentiated from *A. antidesmae* Corbett by possessing 5 pairs of pores on the abdomen, the posterior 2 pairs of which are larger and the anterior 3 pairs are with a shorter spine, and from *A. holmesii* Mask. chiefly by the shorter marginal teeth and the

presence of 5 pairs of pores on the abdomen.

Aleurodicus malayensis n. sp.

Pupa case: Pale in colour. Elongate subovate, much narrowed cephalad, rounded at the front margin, nearly straight or broadly rounded at the hind margin, broadest at the middle of abdomen, without submarginal setae. Suture between the thorax and abdomen longer than the abdominal ones; the 7th abdominal segment the shortest; pockets wide; the 8th longer than the 6th. Cephalothorax with a pair of large pores, which are near the lateral margin, with a very long slender spine that is bluntly pointed and far reaching beyond the margin¹⁾; abdomen with 6 pairs of pores, the posterior 2 pairs distinctly larger than the preceding 3 pairs, a little larger than the basal pair and those on the cephalothorax, with a very long slender spine; the remaining pores with a short slender spine which is hardly reaching beyond the margin of the pore; the anterior pair on the abdomen nearly as those on the cephalothorax. Margin narrowly sclerotized; marginal teeth distinct, short, very broad, broadened towards the base, truncate or slightly sinuate at the middle of the distal margin, about 53 in number on one side. Vasiform orifice subcordate, rounded at the apex, wider than long. Operculum short, occupying somewhat less than half the orifice, rounded on the side. Lingula normal in shape, constricted basally, reaching far beyond the hind margin of the orifice, nearly reaching a line drawn between the anterior margins of the last pair of pores, with 2 pairs of subapical setae. Space between the orifice and the hind end of body longer than the orifice excluding the lingula. Pupa case 1.0—1.08mm. long.

¹⁾ The spines of pores on the cephalothorax variable in length, sometimes shorter than those of the posterior 2 pairs of pores on the abdomen.

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Host plant : An undetermined tree.

Kuara Lumpur : a few specimens (10. III. 1943).

Distinguished from other species of the genus by the pupa case being narrow and much narrowed cephalad. *A. holmesii* Mask. seems to be the most allied species, but much differs from the present new species in the shape of pupa case, the structure of margin, and in the shorter spines of pores.

***Nipaleyrodes* n. g.**

Pupa case : Elongate, without dorsal papillae and tubercles. Submarginal area not defined from the dorsal disk, with a series of large octagonal pores. Eyes wanting. Thoracic tracheal combs distinct, caudal furrow wanting. Margin not crenate. Vasiform orifice triangular, longer than wide, large, not elevated, without teeth. Operculum much wider than long, occupying less than half the orifice. Lingula large, gradually knobbed, without long setae.

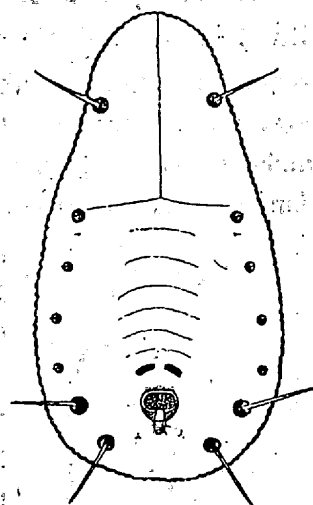


Fig. 2 *Aleurodicus malayensis* n. sp. Pupa case

Genotype : *N. elongata* n. sp.

Related to *Bemisia* Quaint. et Baker, but differs in the presence of large octagonal pores on the submarginal area. Resembles *Stenaleyrodes* Takah., differing, however, in lacking submarginal papillae, and in possessing large octagonal pores.

***Nipaleyrodes elongata* n. sp.**

Pupa case : Pale brown. Elongate, narrow, flattened, over 2.5 times as long as wide, not constricted, bluntly pointed at the front end, without papillae and long setae, nearly as in *Stenaleyrodes vinsoni* Takah. in general shape, but narrower. Mid-thoracic suture not reaching the margin; a transverse suture present anteriorly on the cephalothorax, which is extending posteriorly on the submarginal area, reaching a line drawn across the thoracic tracheal combs; sutures between the meso- and metanota and between the thorax and abdomen very short; abdominal segments distinct on the median very narrow area, much shorter than the metanotum, defined laterally by longitudinal furrow-like lines; basal 7 segments each with a pair of small circular markings, which are nearly as large as the submarginal octagonal pores; the 7th tergite the shortest, the 8th nearly as long as the 6th; rhachis absent. Dorsum with many rather large pores in a single row on the submarginal area, which are octagonal, but with a rather broad circular area at the center, equal in size, 8–10 in number on each side in front of the thoracic tracheal comb, and 14–17 on each side behind the comb; the row of the pores interrupted at the median area. Margin not crenate, narrowly a little scle-

rotized. Thoracic tracheal combs not sunken, not projecting beyond the margin, with 4–6 small distinct teeth, which are rounded or bluntly pointed apically, irregular in shape, mostly wider than long, and parallel on the sides, or widened towards the base; caudal comb not distinct. Thoracic tracheal folds not discernible. Caudal furrow and sculptures absent behind the vasiform orifice. Vasiform orifice triangular, rather large, a little longer than wide, bluntly pointed, rounded on each

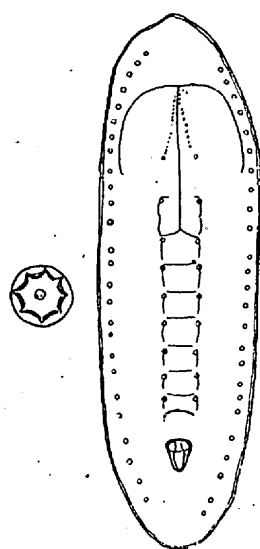


Fig. 3 *Nipaleyrodes elongata* n. sp. Pupa case and submarginal pore

side at the base, very shallowly sinuate on each side, lacking teeth; the anterior marginal area not defined. Operculum much wider than long, occupying over one-third the orifice, rounded at the lateral margin. Lingula nearly reaching the hind end of the orifice, large, moderately knobbed, bluntly pointed apically; the knobbed part much longer than wide, with no long setae discernible. A pair of short setae near the base of the orifice. Space between the orifice and the hind end of pupa case over twice as long as the middle leg. No markings on the venter. Body about 2.2mm. long.

Host plant: Nipah palm.

Kuala Selangor (18. VI. 1943), Port Swettenham (29. XII. 1943).

Resembles *Stenaleyrodes vinsoni* Takah. from a palm on the island of Reunion, but much differs in lacking submarginal papillae and setae, possessing large octagonal pores, the shorter vasiform orifice, the lingula not so pointed apically, the shorter transverse sutures, and in other points. In Malaya several species of Aleyrodidae have been found on palms, but no related form is known.

***Heteraleyrodes bambusicola* n. sp.**

Pupa case: Pale yellow in life, with a pair of longitudinal brown wavy stripes on the submedian area, with no secretion evident. Elongate elliptic, broadest at the basal part of abdomen, not constricted, with no marginal indentation, like *Corbettia milletiicola* Dozier in shape, but not more narrowed at the hind end than at the front. Mid-thoracic suture reaching the margin, hardly discernible on the matanotum; mesonotum not well defined from the pronotum; suture between the meso- and metanota prominent, nearly straight, as long as the abdominal sutures, reaching the longitudinal stripes; cephalothorax distinctly shorter than the abdomen; suture between the thorax and abdomen short, reaching slightly beyond the longitudinal stripes; abdominal segments distinct, the basal segment longer than the metanotum; basal 7 abdominal segments with a pair of oval markings on the anterior

half; the 7th segment somewhat shorter than the 6th, nearly as long as the 8th, pockets not distinct; median segmented area of abdomen slightly wider than the lateral unsegmented area at the basal part, defined laterally by a pair of longitudinal sclerotized stripes which are not reaching beyond the anterior margin of vasiform orifice. Dorsum with a pair of long fine simple setae on the head, mesonotum, metanotum, near the vasiform orifice, and also near the hind end; 44-48 long bristles in a row along the whole margin, which are as long as, or a little shorter than, the dorsal setae, a little curved, equal in length, as long as the 4th abdominal tergite, capitate and truncate at the tip, somewhat widened towards the base, and 18-20 of which are on the cephalothorax; 12 longer fine simple setae also present in a row along the margin of cephalothorax, which row is outside of the series of capitate setae; numerous very minute granules in long paired rows running mesad from the margin, but narrow longitudinal parts laterad of the vasiform orifice without granules; some minute circular pores scattered. Tracheal folds, pores, or combs, and caudal furrow wanting. Marginal teeth small, sclerotized, distinctly longer than wide, parallel on the sides, rounded at the apex, closely arranged. Vasiform orifice elliptical, large, much longer than wide, as long as the 8th abdominal tergite, far separated from the hind margin, not notched, without teeth, but with a small rounded median tubercle at the hind end; the anterior marginal area not widened, slightly defined. Operculum occupying two-thirds the orifice. Lingula a little exposed, knobbed, setose. Pupa case 2.0mm. long, 1.05mm. wide.

Host plant : Bamboo.

Kuala Lumpur : A single specimen (13. III. 1914).

Different from *H. bambusae* Takahashi chiefly in possessing many submarginal setae and wanting sculptures behind the vasiform orifice. Resembles *Corbettia milletiicola* Dozier, differing, however, in the presence of a pair of longitudinal sclerotized parts instead of chains of pores, as well as in other structures.

Neoleurolobus n. g.

Pupa case : Closely related to *Aleurolobus* Quaint, et Baker, but differs as follows: Vasiform orifice and caudal furrow not surrounded by a palmate area or caudal ridges. Operculum much wider the long, occupying half the orifice. Tracheal combs more or less forming pores like *Dialeurodes* Ckll.

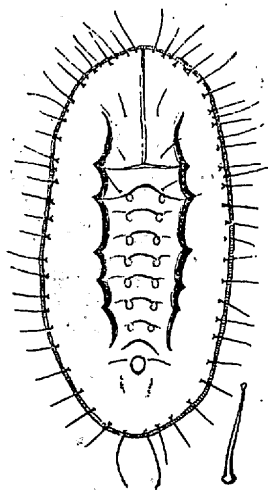


Fig. 4. *Heteraleurodes bambusicola* n. sp.
Pupa case and submarginal capitate seta

Genotype : *Aleurolobus musae* Corbett.

Distinguished from *Tetraleurodes* Quaint. et Baker in the structures of vasiform orifice and margin, and in the presence of a caudal furrow.

***Neoaleurolobus musae* Corbett.**

Aleurolobus musae Corbett, Jl. Fed. Malay St. Mus., XVII, p. 820 (1935).

Pupa case : Pale in colour. Somewhat elongate, elliptical, not constricted, slightly pointed at the hind end. Mesonotum faintly defined from the pronotum; suture between the thorax and abdomen scarcely extending latero-anteriorly on the lateral part, reaching the submarginal area; each abdominal segment with a pair of faint markings along the anterior margin; the 7th tergite shorter than the 6th; the 8th as long as the 6th; pockets wanting; lateral ridges or rhachis absent; cephalothorax shorter than the abdomen. Submarginal area defined from the dorsal disk throughout, with many pale furrow-like markings which are wavy, and running from the mesal margin, but not reaching the margin of pupa case. Dorsum not corrugated, without granules and eye spots, with many minute pores scattered, and about 12 very short setae in a row on each side, 3 anterior ones of which are

near the margin of dorsal disk, and the remaining ones are on the mesal margin of submarginal area. Thoracic tracheal folds narrow, with dots on the basal part; combs slightly protruding, each forming a small pore, with a rounded tooth and a much smaller pointed one within the pore; these teeth much longer than wide.

Caudal comb similar, but with a tooth only. Vasiform orifice not surrounded by a palmar area or caudal ridges, much longer than wide, rounded at the tip, with about 6 large pointed teeth on each side, as long as the 8th tergite, a little shorter than the distance between the orifice and the submarginal area, which distance is somewhat shorter than the width of submarginal area at the hind end. Operculum wider than long, rounded at the free margin, occupying about half the orifice. Lingula moderately knobbed; the knobbed part longer than wide, setose, a little pointed, with a pair of

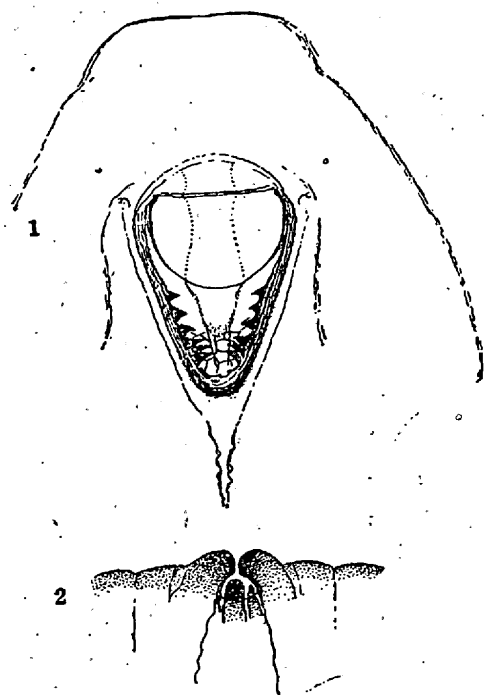


Fig. 5 *Neoaleurolobus musae* Corbett.
(Pupa case)

1 Vasiform orifice and basal part of caudal furrow

2 Thoracic tracheal comb

long setae. Antennae rather slender. Other characters given in the original des-

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cription. Pupa case 1.4mm. long, 1.0mm. wide.

Host plant : A fern.

Kuala Lumpur : some specimens (18. IX. 1944).

Previously known from *Musa*. Tracheal combs resemble those of *A. citri* Takah., but the median teeth much smaller and the outer teeth of each comb curved inwards forming a pore.

***Aleurocanthus corbetti* n. sp.**

Pupa case : Brownish black, with much wax along the margin. Oval, wide, like *Aleurocanthus hibisci* Corbett in shape. Midthoracic suture thin, nearly reaching the margin; suture between the meso- and metanota long; abdominal segments discernible on the median rather narrow area. Dorsum a little corrugated except on the median segmented area of abdomen: dorsal spines sharply pointed, distributed as shown in figure; submarginal spines very long, slender, not black in specimens treated with potash, straight or slightly curved, subequal in length; submedian spines stout, the basal part stouter than that of the submarginal one; many very short setae scattered on the submarginal area, which are nail-like, shorter than the diameter of the basal part of submarginal spine, nearly as long as the outer marginal teeth, somewhat widened towards the base and stiff; a few, a little longer, simple, thin setae also present on the submarginal area. Marginal teeth in 2 rows; upper teeth small, triangular, rounded apically, a little wider than long; lower teeth longer, conical, slender, pointed apically, with a few minute pointed spines on the surface. Vasiform orifice on a prominent projection, reaching beyond the hind end of pupa case, longer than wide, rounded, without teeth; a pair of long fine simple setae near the vasiform orifice; the projection cylindrical, not widened basally, much longer than wide. Pupa case about 1.0mm. long, longest spine about 0.38mm.

Host plants : Undetermined trees.

Ulu Gombak (Selangor) : some specimens (11. V. 1944); Kuala Lumpur (14. VIII. 1945).

This species is remarked by the vasiform orifice prominently protruding beyond the hind end of pupa case. Differs from *A. pendleburyi* Corbett as follows : Pupa case wider. 2 pairs of anterior long spines on the median area of cephalothorax nearly in a transverse row. Metanotum with 2 pairs of spines. Basal abdominal tergite with a pair of spines. Vasiform ori-

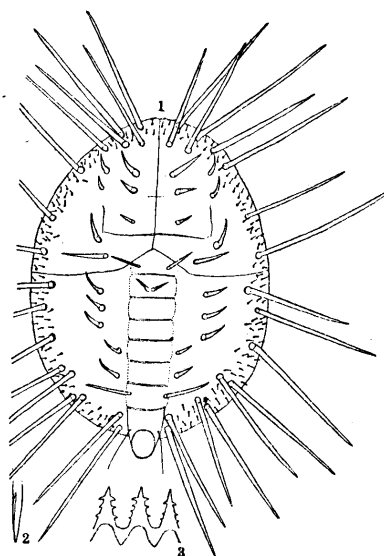


Fig. 6 *Aleurocanthus corbetti* n. sp.

- 1 Pupa case
- 2 Apical part of submarginal spine
- 3 Marginal teeth

fice projecting beyond the hind end of pupa case. Marginal teeth stouter, not sinuate on the surface, with a few minute spines. Named after Mr. G. H. Corbett who has much contributed to the studies of Malayan Aleyrodidae and other insects.

All the specimens were collected by the writer and were deposited in the Selangor Museum, Kuala Lumpur, Malaya.

Description of the sawfly larva, *Pseudotaxonus secundus* Takeuchi

TEIICHI OKUTANI

Family Tenthredinidae

Subfamily Selandriinae

Pseudotaxonus secundus Takeuchi

Stage : Ultimate instar larva.

Size : 18~20mm long. Head : Length 1.3mm and 3.6mm high by 3.5mm broad.

Color : Head yellowish brown; eyes and eye disks black; mouth parts brown. Body green, the apex of claws and spiracles brown.

Structure —

Head : Frontal aspect circular in outline, smooth and setigerous. Vertical furrow (vf) distinct. Eye disks (ed) flattened and smooth, lens (a) slightly convex. Antenna (a) conical and with 5 joints and an antacoria (an); relative lengths of 5 segments about 5:3:3:3:4. Frons (f) nearly semi-circular, $\frac{6}{7}$ as high as broad, with many setae arranged rather regularly (with 6 setae along epistomal suture). Clypeus indistinctly subdivided into pre- and postclypeus which are about 2:5 in relative length; postclypeus (oc) with 6 setae and preclypeus (ec) bare. Labrum with 8 setae. Sinistral mandible with 7 and dextral with 6 dentes and each with a seta. Maxilla with palpifer (pf) large, setigerous with 2 setae; palpus (mp) 4-segmented, 2nd with a seta, and the others bare; relative lengths of palpal segments about 3:7:5:5; stipes (st) large, with a seta; galea (g) large, without setae; lacinia (la) broad, flattened, with 10 rather strong setae along apical margin. Labium with palpiger (pg) and 3-segmented palpus (lp); basal and apical palpal segments without setae, middle one with a seta; proportional lengths of palpal segments about 5:5:6. Mentum divided into pre- and postmentum, and relative lengths of two regions about 3:2; prementum (em) subdivided by paired longi-